

CULTIVATING CEPHALOTUS FOLLICULARIS

by David Kutt

My own experience with cultivating Cephalotus is confined to the past two and one-half years. During that time I have grown plants from rhizome portions and leaf cuttings with relative success regarding size and plant vigor.

My introduction to cultivating this plant came in early 1973 when several small rhizome portions were given to me by a friend. At that time, living sphagnum (his growing medium) was difficult to obtain in Ohio, so I used more easily obtainable dried fiber sphagnum. The plants did grow in this material, but although no loss of plants occurred, overall growth and development was very slow. The plants were treated basically the same as Sarracenia except for humidity which was kept higher at 75 to 85%, and more frequent misting. They were allowed to cool down to 45° or 50° F. in winter and even froze once or twice with no apparent harm to foliage or root systems. During winter, the lower temperatures accompanied by a shorter natural photoperiod caused production of the characteristic "winter leaves."

In the spring of 1974 the plants were carefully transplanted with all roots intact from their individual clay pots to a larger single tray of more shallow depth. This time they were planted in living sphagnum moss with better results evident later. I noticed when transplanting them that most of the plants had produced runners which were trying to work their way up the sides of the deep six-inch clay pots. As hoped, after transplanting them into the 2 1/2 inch deep tray, the new offshoots broke the surface much more readily. Then, rather than the plants' vigor being spent climbing the walls of deep pots, it was used to spread new vegetation across the surface of the tray.

The past year has seen equally good growth of Cephalotus utilizing unfertilized German peat as a medium rather than living sphagnum. I am not, however, out to make statements about superiority of either medium over the other. I have seen large, healthy plants growing in both materials. Interestingly, beginning in November of 1974, I began testing the effects of light fertilization on some of the plants. Initial feeding efforts of a year ago involved the use of fish emulsion (50% normal dilution) as the nutritive element in misting, watering, and pitcher feeding (once every two weeks). Although plant size began increasing, after four months the use of fish emulsion was discontinued due to its tendency to eventually "spoil" the potting medium even though containers were drained. I am now more successfully using an inorganic fertilizer produced by "Plantabbs". "Hy-grow", an orchid fertilizer has been producing larger pitchers and foliage as well as increasing the speed of development. I use this product at 3/4 normal strength on foliage and in the planting medium, and 1/2 strength in the pitchers. Care should be taken when putting nutrients directly in the pitchers since Cephalotus pitchers will rot off when too strong a dilution is used in them. The plants are fed once a month during their active growth cycle. Regular watering flushes the drained containers in the time intervals between feedings. Although living sphagnum tends to die easily with the addition of minerals and nutrients, the German peat usually just forms its own moss across the surface, preventing "watering splash" of potting material later.

Cephalotus light requirements are more similar to those of Nepenthes than Sarracenia in that they seem to prefer a more diffused type of light. As a general rule concerning pitcher size, more shade produces larger but less colorful pitchers. One can grow Cephalotus in a 50-60% shaded environment, then after several pitchers have developed, light can be slowly increased to "color-up" the foliage.

Although artificial nutrition may not be necessary for good growth, my own experience with cultivated plants here indicates that larger, more vigorous plants are produced by feeding. This comparison is made with non-fed plants grown in living sphagnum or German peat. Present plants here show one and one-half inch pitchers.

ON GROWING THE AUSTRALIAN PITCHER PLANT CEPHALOTUS

by J. A. Mazrimas

A single cluster or rosette of Cephalotus is a rather small plant in comparison to the pitcher plants of North America (Sarracenia) or Asia (Nepenthes). However, like some Sarracenia species, this plant produces two types of leaves--a flat, ovate-shaped one usually found in the center of the plant, and a small pitcher which grows at the end of a long stem which appears on the outer margins of the rosette. The flat leaves are usually produced at cool temperatures (around 50° F.) and short daylength while the pitchers are produced in warmer temperatures (around 75° F.) in the summertime.

In the field, Cephalotus grows on peaty soils that are constantly wet with seepage from above but is mostly found a few yards away from open water and definitely above the water table. In addition, the plants are virtually covered with an overstory of tall grasses and sedges which protects the plant from the hot, searing sunlight. These facts, then, give us some clue to how to cultivate the plant in our greenhouses or terrariums with a minimum of problems.

Old plants of Cephalotus form long underground stems that branch over long distances. Secondary plants arise at some distance from the parent plant. This natural tendency for the plant to propagate itself vegetatively from rootstocks provides some clue on how we could propagate the plant in cultivation.

I grow the plants in clay pots which are first filled about one-half full of horticultural grade perlite followed by a mixture of perlite and chopped live sphagnum moss (about 50-50 mixture). This is topped off with living moss so that it forms a small hill over the sides of the pot. This method provides good drainage which the plants must have. They do not like standing in water for any length of time. One can substitute German peat or ordinary peat moss and perlite or coarse sand if living sphagnum is not available.

I give about 1500 to 2000 foot-candles of light to the plants all day and supplement this with Wide-spectrum Gro-Lux light on an eighteen-hour day-night cycle. This seems to produce good, healthy growth of pitchers and after a month or so the green pitchers start to darken with red coloring first around the pitcher lip or peristome and then later the rest of the pitcher walls. In nature, the pitchers reach a length of 1 1/2 to 2 inches in height and this method of cultivation grows pitchers over one inch in height consistently.

During the growing season, I water the plants every other day since most of it drains through and this regimen seems to keep the plants from wilting and continuously growing. One of the first symptoms of overwatering Cephalotus is that some of the older pitchers will start to turn yellow and eventually turn orange-red and then brown. Sometimes, withholding water for a few days will reverse the trend and sometimes it is too late and all the pitchers will wither and fall off. Spraying with Benlate will prevent any fungus or mold rot in the meantime. Hopefully, new pitchers will grow out in time to replace those that were lost.

In the Northern hemisphere, plants will eventually bloom in July-August if season reversal was successful. The flower stalk is very tall but the flowers are small and inconspicuous. In my first attempt to self-pollinate the flowers, since I had only one plant flowering, I had no results on seed production. The seed is light brown, small and oval shaped. Propagating Cephalotus from seed is very difficult and uncertain because of the low rate of germination and the long wait required before germination. Further investigation of the mechanisms for rapid germination is required before the seed method of propagation becomes an important adjunct to other methods.

The preferred propagation method is from root stock, leaf or pitcher and petiole. Thick roots and rhizomes which are cut from an old plant into two-inch long pieces are allowed to remain in air until the cut ends seal themselves or a suitable wood sealer is applied. They are laid horizontally on top of a pot containing a peat moss-sand mixture or a sphagnum moss-perlite mix as described above. Cover the roots lightly about 1/4 inch deep with more peat and keep the whole pot evenly moist. At this stage, it is easy to keep even moisture by covering the pot with a plastic bag and placing it in light shade until growth is seen poking through the light soil covering. This usually takes 2-3 weeks for the first signs of growth and continuous growth from dormant buds seems to continue over a long time span until one thick two-inch root can give rise to five to ten individual rosettes. These tiny rosettes grow very rapidly to maturity and it remains the fastest method of propagating Cephalotus today.

To propagate from a flat leaf, one must carefully pull it off from its attachment to the rhizome. The next period is critical because first a tiny corm forms on the cut end of the leaf before it differentiates into root and leaf. After cutting, the cut end may be dipped in Rootone powder and laid flat on top of a pot of moistened perlite and covered with a plastic bag. During this time period, the corm is beginning to form and it is important during this time to prevent any mold or fungal infections from killing the young plant. So I spray the entire surface with Benlate solution before covering with the bag. After a tiny root forms, I transfer the plantlet to a pot of live sphagnum moss to allow further development in stronger light. Growing a large plant by this method is slow and it takes several years before it attains a respectable size. One can also propagate from the petiole which is attached to the pitcher the same way as described for the flat leaf.

I should mention here that I have observed a third type of leaf which looks like a large flat leaf that has curled and sealed itself at the edges to form a cone-shaped pitcher whose top edges are sometimes smooth and sometimes deeply cut. It seems to occur more often in the spring and seems to be a fairly rare type although I've seen it occur a half-dozen times already. It must be some monstrous form since no two seem alike.

No varieties or forms of Cephalotus are officially recognized, but several growers have seen real differences in different clones of the plant regarding the size of the

corrugations of the pitcher lip, pitcher shape and lid markings and shape. As was pointed out in previous CPN articles regarding Dionaea, narrow endemism does not seem to prevent marked individual variations in the plants and the same might be true for Cephalotus. Only further cultivation and time will tell.

A CP COURSE IN MICHIGAN
by Larry Halcomb

A course on CP was recently held at the University of Michigan's Botanical Gardens. The class, very ably taught by Larry Mellichamp assisted by his wife Audrey, lasted two days, September 27 and 28, 1975.

The first day, Saturday, consisted of a lecture and open discussion on a brief history, kinds, trapping mechanisms and culture of CP. Everyone discussed and benefitted from sharing cultural information. Displays of books and plants along with microscope setups were scattered around the room in which the class was held. There was a slide show showing Don Schnell's and Fred Case's plants and greenhouses and many excellent pictures of CP in their natural habitat taken by Larry Mellichamp.

The second day, Sunday, started with a lecture on planting seeds, repotting plants, taking cuttings, etc. Then, in a greenhouse, these things were demonstrated and students were given actual plants to work with and keep. Among plants received were several Drosera filiformis, several Drosera binata var. multifida, Dionaea muscipula, Cephalotus follicularis(!!), several Utricularia species; seedlings of Sarracenia flava and Darlingtonia californica; seeds of Drosera filiformis, Drosera rotundifolia, Sarracenia oreophila, Sarracenia leucophylla, Sarracenia flava, Sarracenia purpurea; cuttings of Drosera filiformis, Drosera binata, and Drosera binata var. multifida.

To top it off, the group traveled to Mud Lake Bog about ten miles northwest of the Gardens where D. rotundifolia and S. purpurea grow abundantly in the wild. As eight weary, muddy students washed themselves off, not a complaint was heard. Everyone thought it well worth it.

HEALING (AND POISONING) WITH DROSERA
by Susan Verhoek-Williams

From ancient times to today plants have supplied either the major or the most important part of many medicines. In days when diseases and cures were linked with sorcery and philosophy, a plant as novel as Drosera was sure to be employed in medicine. Surely a plant which retained drops of dew even in the midday heat must have special powers, if not a special understanding with the Sun!

The alchemists of old, in their dual search for the universal remedy for disease and for the Philosopher's Stone which would turn "base" metals into gold, held sundews in high esteem. For medieval alchemists the Philosopher's Stone with its health-giving powers became not so much an actual object but rather the spirit of the world which caused all matter to be transmuted through various stages to the highest state, gold. The closest earthly substance to spirit is air, and therefore materials which had been in close contact with air were thought to contain some of the essence of the Stone. Hence, snow, rain and dew were considered to be part of the universal Elixir of Life. Dew was believed able to dissolve gold. Because it apparently was more "in tune" with the sun, the "dew" on a sundew was considered the most powerful.

In France, sorcerers (as alchemists were popularly known) used Drosera in their potions. Laymen ascribed to it both harmful and beneficial effects. A single plant brought into the house was thought to cause pernicious fever. Outdoors, however, one who searched for a sundew and rubbed its leaves over his skin on St. John's Eve would become indefatigable. Searching was necessary; a person who simply blundered upon the plants would be confounded and never find the spot again.

It was easy to tell if Droseras were nearby, at least so it was believed in the Bourbon region of France. There, it was said, the plants glowed at night and by day green woodpeckers marked the spot; they could be seen flying strangely as they maneuvered to pluck the sundews, which were used to harden their beaks.

Sorcerers and laymen alike collected the plant on St. John's Eve (Midsummer Eve), midnight being considered the time to gather the most effective plants. The gathering was perilous; the collector had to do his collecting walking backwards to avoid being followed by the devil. Devil or no, walking backwards in a bog at midnight would give a collector an uneasy feeling.

Men and women interested in more earthbound things than sorcery probably also experimented with sundews in their quest for cures. Sensitive people who handled the leaves may have